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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Docket No: Q95609

Toyoaki ISHIWATA, et al.

Appln. No.: 10/584,330

Group Art Unit: to be assigned

Confirmation No.: 9644

Examiner: to be assigned

Filed: June 26, 2006

For: LAMINATE

**SUBMISSION OF TRANSLATION OF INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

**MAIL STOP AMENDMENT**

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

Applicants submit herewith for the Examiner's use an English language translation of the International Preliminary Report on Patentability for PCT/JP2004/019688 dated September 14, 2006. A foreign language version of the International Preliminary Report on Patentability was submitted with the Information Disclosure Statement filed on September 26, 2006.

Respectfully submitted,

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WASHINGTON OFFICE

23373

CUSTOMER NUMBER

Bruce E. Kramer

Registration No. 33,725

Date: April 5, 2007

From the INTERNATIONAL BUREAU

**PCT**

NOTIFICATION OF TRANSMITTAL  
OF COPIES OF TRANSLATION  
OF THE INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY  
(CHAPTER I OR CHAPTER II  
OF THE PATENT COOPERATION TREATY)  
(PCT Rules 44bis.3(c) and 72.2)

To:

OHSHIMA, Masataka  
Ohshima Patent Office  
Fukuya Bldg.  
3, Yotsuya 4-chome  
Shinjuku-ku, Tokyo 160-0004  
JAPON



Date of mailing (day/month/year) 14 September 2006 (14.09.2006)	
Applicant's or agent's file reference G281TJ	IMPORTANT NOTIFICATION
International application No. PCT/JP2004/019688	International filing date (day/month/year) 22 December 2004 (22.12.2004)
Applicant TEIJIN LIMITED et al	

## 1. Transmittal of the translation to the applicant.

☐

The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter I).

☒

The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter II).

## 2. Transmittal of the copy of the translation to the designated or elected Offices.

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following designated or elected Offices requiring such translation:

EP, KR

The following designated or elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

AE, AG, AL, AM, AP, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EA, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OA, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

## 3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability (Chapter II).

It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned within the applicable time limit (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer  Masashi Honda
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**TRANSLATION****PATENT COOPERATION TREATY****PCT****INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>G281TJ</b>	<b>FOR FURTHER ACTION</b>	See Form PCT/IPEA/416
International application No. <b>PCT/JP2004/019688</b>	International filing date (day/month/year) <b>22.12.2004</b>	Priority date (day/month/year) <b>24.12.2003</b>
International Patent Classification (IPC) or national classification and IPC <b>B32B27/34 (2006.01), C09J7/02 (2006.01), H01L21/304 (2006.01)</b>		
Applicant <b>TEIJIN LIMITED</b>		

  

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.	
2. This REPORT consists of a total of <u>10</u> sheets, including this cover sheet.	
3. This report is also accompanied by ANNEXES, comprising:	
a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>3</u> sheets, as follows:	
<input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).	
<input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.	
b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).	
4. This report contains indications relating to the following items:	
<input checked="" type="checkbox"/> Box No. I	Basis of the report
<input type="checkbox"/> Box No. II	Priority
<input type="checkbox"/> Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input checked="" type="checkbox"/> Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/> Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/> Box No. VI	Certain documents cited
<input type="checkbox"/> Box No. VII	Certain defects in the international application
<input type="checkbox"/> Box No. VIII	Certain observations on the international application

  

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/019688

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_ which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-3, 5, 7-63 as originally filed/furnished
- pages\* 4, 6 received by this Authority on 06.10.2005
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. 2, 3, 5-29 as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* 1 received by this Authority on 06.10.2005
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ the drawings:
- sheets \_\_\_\_\_ as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☒ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☒ the claims, nos. 4
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (specify): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (specify): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (specify): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (specify): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

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## Box No. IV Lack of unity of invention

1. ☐ In response to the invitation to restrict or pay additional fees the applicant has:
- ☐ restricted the claims.
  - ☐ paid additional fees.
  - ☐ paid additional fees under protest.
  - ☐ neither restricted the claims nor paid additional fees.
2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is:
- ☐ complied with.
  - ☒ not complied with for the following reasons:

The inventions set forth in claims 1 to 3 and 5 to 24 pertain to a multilayer member with a layered structure that includes the layered member (I) set forth in claim 1, wherein an adhesive layer (B) has been formed on one side or on both sides of the base layer (A).

The inventions set forth in claims 25 to 29 pertain to the method for the production of multilayer members which is set forth in claim 25, wherein the outer surface of layer (E) in layered member (III), which comprises a layer (C) to be bonded, an adhesive layer (B), a base layer (A), an organic protective layer (D) and a layer (E) to be processed, is subjected to a process for converting said layer (E) into a layer (E'); the resulting layered member is subjected to a heat treatment; and then the layered member (I) that comprises layer (C), layer (A) and layer (B) is removed in order to produce a layered member that comprises layers (D) and (E').

4. Consequently, this report has been established in respect of the following parts of the international application:

- ☒ all parts.
- ☐ the parts relating to claims Nos. \_\_\_\_\_

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	1-3, 5-29	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-3, 5-29	NO
Industrial applicability (IA)	Claims	1-3, 5-29	YES
	Claims		NO
2. Citations and explanations (Rule 70.7)			
- Document 1: JP 2-272077 A (Nitto Denko Corp.), 06 November 1990, claims; page 3, upper right column to page 4, upper left column; and page 5, upper left column to lower left column			
- Document 2: JP 5-105850 A (Sumitomo Bakelite Co., Ltd.), 27 April 1993, claims; industrial field of the invention; paragraphs [0014] to [0015]; and table 1			
- Document 3: JP 2003-37155 A (Mitsubishi Gas Chemical Co., Inc.), 07 February 2003, claim 1 and paragraphs [0007], [0016], [0019], [0022] and [0050] & US 2002/0127821 A1			
- Document 4: The Society of Polymer Science, Japan, Kobunshi ABC Kenkyukai Ed., Polymer ABC Handbook, Kabushiki Kaisha NTS, 01 January 2001, pages 72 to 79			
- Document 5: JP 10-67851 A (Ube Industries, Ltd.), 10 March 1998, claim 1 and table 1			
- Document 6: JP 2003-192788 A (Mitsui Chemicals, Inc.), 09 July 2003, claim 1 and table 1			
- Document 7: JP 2000-159887 A (Kaneka Corp.), 13 June 2000, claim 1 and table 1			

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|--|---|
|  | <p>Document 8: JP 2-142827 A (Mitsui Toatsu Chemicals, Inc.), 31 May 1990, page 1, lower right column, lines 10 to 15</p> <p>Document 9: JP 61-9458 A (Mitsui Toatsu Chemicals, Inc.), 17 January 1986, page 2, upper right column, line 20 to lower left column, line 17</p> <p>Document 10: JP 10-1643 A (Sumitomo Bakelite Co., Ltd.), 06 January 1998, claim 1 and paragraphs [0022] and [0023]</p> <p>Document 11: JP 63-221138 A (Kanegafuchi Chemical Ind.), 14 September 1988, claims, examples and table 1 &amp; US 1991/5070181 A1 &amp; EP 0281923 B1</p> <p>Document 12: JP 63-254130 A (Mitsubishi Electric Corp.), 20 October 1988, examples</p> <p>Document 13: JP 9-139558 A (Hitachi, Ltd.), 27 May 1997, paragraph [0037] and table 1</p> |
|--|---|

The inventions set forth in claims 1, 5, 6, 8 and 13 do not involve an inventive step in the light of documents 1 and 2, which are cited in the international search report, and documents 11 and 12, which are newly cited in the present report.

Document 1 does not mention the glass transition temperature of the first layer, which is a support film; however, said document (page 3, upper right column to page 4, upper left column) discloses a composition that is described as being a fully aromatic polyimide with a glass transition temperature of 350°C or higher in the description of the present application. Such being the case, document 1 can be said to disclose an invention

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wherein the first layer has a glass transition temperature of 350°C or higher.

In addition, document 1 does not mention the linear expansion coefficient of the first layer; however, it is a known fact that it is preferable for the base layer of layered adhesive films that are used in the same applications in the same technical field as the adhesive layer disclosed in document 1 to have a low linear expansion coefficient as well as superior dimensional stability characteristics (for example, refer to document 2). Thus, it is desirable for the adhesive material disclosed in document 1 to be dimensionally stable, and therefore it is considered to be necessary to employ a support film that has a low linear expansion coefficient therein. Furthermore, fully aromatic polyimides that have a low linear expansion coefficient within the range set forth in claim 1 of the present application are well known, as disclosed in document 11 (claims, examples and table 1) or document 12 (examples) for example. Such being the case, it would have been easy for a person skilled in the art to conceive of employing a film configured from one of the abovementioned well-known fully aromatic polyimides with a low linear expansion coefficient as the fully aromatic polyimide film of the first layer of the invention disclosed in document 1 in order to improve the dimensional stability characteristics thereof.

The invention set forth in claim 1 does not involve an inventive step in the light of documents 2, 5 to 7 and 10, which are cited in the international search report, and documents 11 to 13, which are newly cited in the present report.



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Document 2 discloses thermobondable tape configured from a heat-resistant base layer and an adhesive layer that comprises a fully aromatic polyimide with a glass transition temperature of 350°C or lower, and given the thermobondability of the tape, it is apparent that the heat-resistant base layer has a glass transition temperature higher than the glass transition temperature of the adhesive layer. Meanwhile, document 10 indicates that it is preferable to employ a polyimide resin with a glass transition temperature of 350°C or higher as the base material that is coated with an adhesive agent comprising a polyimide resin with a glass transition temperature of 350°C or lower. Furthermore, fully aromatic polyimide resins that have a glass transition temperature of between 80°C and 350°C are well known, as disclosed in document 7 (claim 1 and table 1) for example.

Therein, document 2 does not delimit a numerical range for the linear expansion coefficient of the base layer, but does indicate that a film with a low linear expansion coefficient is used in order to improve the dimensional stability characteristics of the base layer. In addition, the fully aromatic polyimide film with a low linear expansion coefficient and the fully aromatic polyamide film with a low linear expansion coefficient from the invention set forth in claim 1 of the present application, which are configured from resins which are described as having a glass transition temperature of 350°C or higher in the description of the present application, are well known, as disclosed in document 11, document 12 and document 13 (paragraph [0037] and table 1). Such being the case, it would have been easy for a

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person skilled in the art to conceive of employing the abovementioned well-known films that have a low linear expansion coefficient as the base layer of the thermobondable tape disclosed in document 2 in order to improve the dimensional stability characteristics thereof.

The inventions set forth in claims 2 and 3 do not involve an inventive step in the light of documents 1, 2, 5 to 7 and 10, which are cited in the international search report, and documents 11 to 13, which are newly cited in the present report.

Given the purpose of the invention disclosed in document 1, it would have been easy for a person skilled in the art to delimit the Young's modulus of the multilayer body with consideration of the product-mounting characteristics thereof.

The inventions set forth in claims 6 to 9, 13, 14, 16 and 17 do not involve an inventive step in the light of documents 2 and 4 to 10, which are cited in the international search report, and documents 11 to 13, which are newly cited in the present report.

It would have been easy for a person skilled in the art to conceive of employing the well-known fully aromatic polyimide films and fully aromatic polyamide films that are disclosed in documents 11 to 13 or the well-known fully aromatic polyimide resins and fully aromatic polyamide resins that are disclosed in document 4 as the resins with prescribed glass transition temperatures which constitute the heat resistant base material or the adhesive layer of the invention disclosed in document 2.

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The inventions set forth in claims 19 to 21 do not involve an inventive step in the light of documents 1, 2, 5 to 7 and 10, which are cited in the international search report, and documents 11 to 13, which are newly cited in the present report.

Document 2 discloses a feature wherein an adhesion layer that comprises an inorganic material such as silicon or a metal is laminated upon the adhesive layer.

The inventions set forth in claims 10 to 12, 15 and 18 do not involve an inventive step in the light of documents 2, 4, 5 to 7 and 10, which are cited in the international search report, and documents 11 to 13, which are newly cited in the present report.

It would have been easy for a person skilled in the art to conceive of employing the resin composition disclosed in document 4, which comprises a fully aromatic polyimide resin and a fully aromatic polyamide resin, in the adhesive layer of the invention disclosed in document 2.

The inventions set forth in claims 22 to 29 do not involve an inventive step in the light of documents 1 to 3, 5 to 7 and 10, which are cited in the international search report, and documents 11 to 13, which are newly cited in the present report.

Document 3 discloses a layered member that comprises a wafer, a multilayer resin film and a retaining substrate (claim 1), and further indicates that it is possible to provide a protective resin film to the circuit surface of the wafer (paragraph [0007]). Furthermore, document 3 also discloses a method for the production of thinned wafers by thinning the wafer in the abovementioned layered member and then removing the

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multilayer resin film and the retaining substrate therefrom. Such being the case, it would have been easy for a person skilled in the art to conceive of using the adhesive film for processing semiconductor elements which is disclosed in document 1 or document 2 in the layered member and the method for the production of thinned wafers which are disclosed in document 3.